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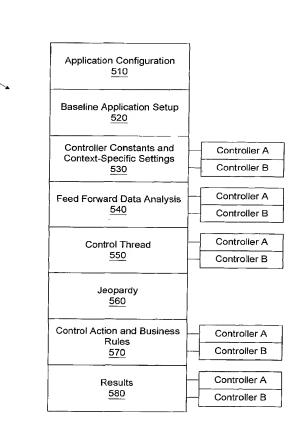
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#### (54) Title: METHOD AND APPARATUS FOR INTEGRATING MULTIPLE PROCESS CONTROLLERS



(57) Abstract: A method for controlling a manufacturing system includes processing workpieces in a plurality of tools (120, 125); initiating a baseline control script (152, 154) for a selected tool (120, 125) of the plurality of tools (120, 125); providing context information for the baseline control script (152, 154); determining a tool type based on the context information; selecting a group of control routines for the selected tool (120, 125) based on the tool type; determining required control routines from the group of control routines based on the context information; and executing the required control routines to generate control actions for the selected tool (120, 125). A manufacturing system incldes a plurality of tools (120, 125) adapted to process workpieces, a control execution manager (150), and a control executor (220). The control execution manager (150) is adapted to initiate a baseline control script (152, 154) for a selected tool (120, 125) of the plurality of tools (120, 125) and provide context information for the baseline control script (152, 154). The control executor (220) is adapted to execute the baseline control script (152, 154), determine a tool type based on the context information, select a group of control routines for the selected tool (120, 125) based on the tool type, determine required control routines from the group of control routines based on the context information, and execute the required control routines to generate control actions for the selected tool (120, 125).



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# INTERNATIONAL SEARCH REPORT

Inte nal Application No

		PCT/US	01/47271
A. CLASSI IPC 7	FICATION OF SUBJECT MATTER G05B19/418 G05B19/4093		
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Documental	tion searched other than minimum documentation to the extent that	such documents are included in the field	ls searched
	ata base consulted during the international search (name of data ba	se and, where practical, search terms t	ised)
EPO-In	ternal		
C. DOCUM	ENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the re	levant passages	Relevant to claim No.
Х	GB 2 329 041 A (MITSUBISHI ELECT 10 March 1999 (1999-03-10) page 23 -page 44	RIC CORP)	1,4-6,9, 10
Υ	figures 1-16		2,3,7,8
·		ODDAN	
Y	WO 99 64940 A (ALLEN ROBERT F ;J RICARDO T (US); SPEEDFAM IPEC CO 16 December 1999 (1999-12-16) page 16, line 15 -page 17, line	RP (US))	2,7
<b>Y</b>	US 4 698 766 A (ROBERTS PETER E 6 October 1987 (1987-10-06) column 2, line 1-11 column 4, line 48-52 column 8, line 52 -column 9, line figures 1,2		3,8
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		-	
X Furt	ther documents are listed in the continuation of box C.	X Patent family members are I	sted in annex.
	ategories of cited documents:	"T" later document published after the	
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filing	document but published on or after the international date ent which may throw doubts on priority claim(s) or	"X" document of particular relevance; cannot be considered novel or ca involve an inventive step when the	nnot be considered to
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P docum	means lent published prior to the international filing date but han the priority date claimed	in the art.  *&" document member of the same pa	
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	European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswljk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	MESEGUER MAYORA	L, J

# INTERNATIONAL SEARCH REPORT

Inte nal Application No
PCT/US 01/47271

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT								
Category °		Relevant to claim No.						
A	EP 1 072 967 A (APPLIED MATERIALS INC) 31 January 2001 (2001-01-31) page 10 -page 17	1-10						
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte al Application No
PCT/US 01/47271

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2329041 A	10-03-1999	JP 10086040 A DE 19725101 A1 GB 2314174 A ,B HK 1004961 A1 KR 252460 B1 US 5870306 A	07-04-1998 02-01-1998 17-12-1997 28-04-2000 15-04-2000 09-02-1999
WO 9964940 /	A 16-12-1999	US 6292708 B1 DE 19983295 T0 GB 2354844 A JP 2002517916 T TW 486770 B WO 9964940 A1	18-09-2001 13-06-2001 04-04-2001 18-06-2002 11-05-2002 16-12-1999
US 4698766	A 06-10-1987	DE 3581000 D1 EP 0162670 A2 GB 2158970 A ,B JP 61019548 A	07-02-1991 27-11-1985 20-11-1985 28-01-1986
EP 1072967	A 31-01-2001	EP 1072967 A2 JP 2001143981 A US 2002156548 A1	31-01-2001 25-05-2001 24-10-2002